

Reassessing Cancer Mortality in Rhode Island, an Old Urban State

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Previous analyses^{1,2} established that Rhode Island (RI) cancer mortality, among the highest in the United States (US), displays an "urban profile."³ In brief, RI, one of the most urban states, has experienced higher rates of cancer mortality than the nation over a period of at least five decades. When this differential is decomposed, it is found to be caused by cancers of a limited number of anatomical sites, including cancers in which diet is implicated and cancers related to tobacco use. Mortality rates from these cancers are elevated in urban areas throughout the developed world.³

In this report, we extend earlier analyses with the addition of data on cancer mortality during 1990-1999 for both RI and the US, and present findings relating to trends over the period 1970-1999 and relating to differences between RI and US rates.

Methods. RI and US cancer mortality rates for 1970-1999 were obtained from the National Cancer Institute's SEER Incidence and US Mortality Statistics.⁴ All rates, published and derived, are directly standardized for age, using the 1970 population of the US as the standard population, and are expressed as "average annual deaths per 100,000 population per year." They are specific for race and gender, and are grouped by decade.

The percent elevation (RI rate relative to US rate) of mortality caused by tobacco-related cancers was determined using cancers of the lung-bronchus, urinary bladder, esophagus, oral cavity, pharynx, and larynx. The sites used to determine percent elevation for cancers in which diet is implicated include cancers of the colon-rectum, stomach, breast among females, and prostate among males. These groupings follow those established in the initial "urban cancer" study.³

All results are based on cancer deaths among whites only. RI and US African-American cancer mortality rates were not available for the years 1970-1979 (race-specific rates only identified white and non-white). Also, RI rates for all races other than white and for Hispanics are based on small numbers of deaths, which are associated with large standard errors.

Results. Among white males in RI, mortality from all cancers combined decreased from the 1970s to the 1980s, the first decrease since at least the 1950s, and continued to decline into the 1990s (Figure 1). Among white males in the US, all-cancer mortality rates increased from the 1970s to the 1980s, and, decreased in the 1990s, also for the first time since at least the 1950s. RI rates were higher than US rates in each of the decades observed. Overall, from the 1970s to the 1990s, RI all-cancer mortality rates decreased by 6.7% and US rates decreased by less than 1%. The decline in cancer death

rates was driven by decreases among diet-related cancers (down 21.2% in RI and 12.0% in the US) and, in RI, among tobacco-related cancers (down 5.0%). For the US, tobacco-related cancer deaths were 1.8% higher in the 1990s than the 1970s, and 5.1% lower than in the 1980s.

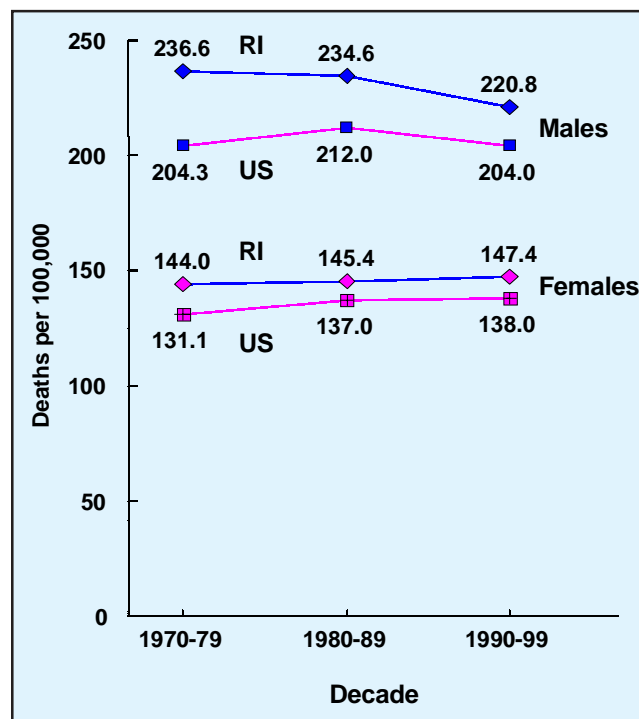


Figure 1. All-site cancer mortality per 100,000 population (age-adjusted), by sex and decade, Rhode Island and United States, 1970-1999.

All-cancer mortality rates for white females were higher in RI than in the US during each decade from 1970 through 1999 (Figure 1). In both geographical areas, rates increased from the 1970s through the 1990s. With an overall increase of 5.3%, the increase in US white female cancer mortality rates was more than double the 2.4% increase in RI rates. Decreases in diet-related cancers (down 26.6% in RI and 19.3% in the US) were largely offset by increases in tobacco-related cancers (up 98.6% in RI and 88.4% in the US).

Among white males, the percent elevation of RI mortality rates relative to US rates for all-cancer mortality decreased from the 1970s through the 1990s (Figure 2). This decline was driven by decreases in the RI elevation of tobacco-related cancer mortality (down from 18% in the 1970s to 10% in the 1990s) and diet-related cancer mortality (down from 28% to 14%). Mortality from all other cancers was elevated only slightly in the 1970s, 1980s, and 1990s. Despite the decreasing trend in the percent elevation, RI tobacco- and diet-related cancer death rates remain higher than those of the US.

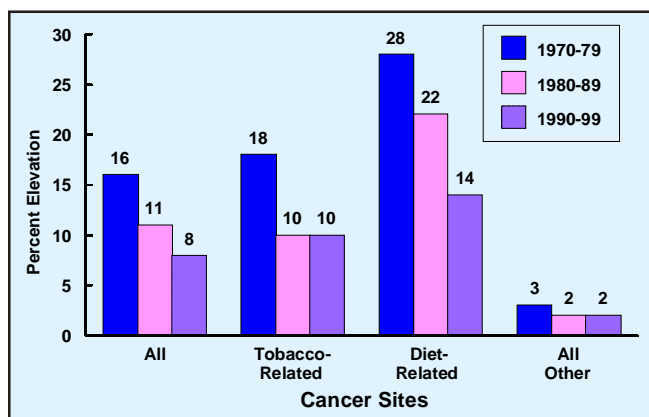


Figure 2. Percent elevation in Rhode Island cancer mortality rate per 100,000 population (age-adjusted) relative to the United States, by cancer site group and decade, white males, 1970-1999.

Among RI white females, the percent elevation over the US in all-cancer mortality decreased from the 1970s to the 1980s, and rose slightly from the 1980s to the 1990s, resulting in a net decline overall. (Figure 3) This decline was driven by a reduced elevation in diet-related cancers (down from 25% in the 1970s to 13% in the 1990s) and partly offset by a less substantial but growing elevation in tobacco-related cancers (up from 1% in 1970s to 6% in the 1990s). Mortality from all other cancers was either not elevated at all or

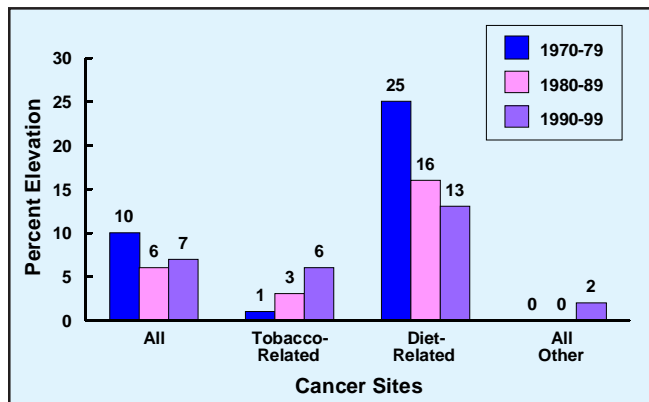


Figure 3. Percent elevation in Rhode Island cancer mortality rate per 100,000 population (age-adjusted) relative to the United States, by cancer site group and decade, white females, 1970-1999.

elevated only slightly in the 1970s, 1980s, and 1990s. Despite the decreasing trend in percent elevation in diet-related cancer deaths, RI rates are still higher than those of the US.

Discussion. During the 1990s, Rhode Island continued to exhibit an “urban profile” in the cancer mortality rates among white residents. However, for both males and females, the level of elevation in mortality relative to the US was lower than in previous decades. The decline in the level of elevation was greatest for cancer sites related to diet for both males and females and for cancer sites related to tobacco for males.

In addition, the age-adjusted all-cancer mortality rate for white males fell from one decade to the next in the 1980s in RI and in the 1990s in both RI and the US. Mortality from tobacco-related cancers also fell during the 1990s among males in both areas. Among both males and females, mortality from diet-related cancers fell during the 1990s in RI and the US.

These improvements in cancer mortality, especially those related to tobacco, likely reflect changes in risk behaviors in the underlying populations that were accomplished decades earlier. For diet-related cancers, there have also been improvements in cancer screening and treatment that have led to reduced mortality rates. In Rhode Island, the achievement of lower absolute mortality rates, as well as lower rates relative to the national experience, strongly suggests that the state’s residents have adopted healthier lifestyles and (with their physicians) better screening practices that will continue to reduce the state’s historically high burden of mortality and morbidity from cancer.

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